New Hampshire Children and Teens Experiencing Mental Health Disorders: An Analysis of 2019 Healthcare Claims Data

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UNH Land, Water, and Life Acknowledgement

As we all journey on the trail of life, we wish to acknowledge the spiritual and physical connection the Pennacook, Abenaki, and Wabanaki Peoples have maintained to N'dakinna (homeland) and the aki (land), nibi (water), lolakwikak (flora), and awaasak (fauna) which the University of New Hampshire community is honored to steward today. We also acknowledge the hardships they continue to endure after the loss of unceded homelands and champion the university's responsibility to foster relationships and opportunities that strengthen the well-being of the Indigenous People who carry forward the traditions of their ancestors.

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Background

According to the United Health Foundation, New Hampshire (NH) ranks number 1 in the United States on social and economic indicators such as low crime and food insecurity rates and high rates of school graduation and internet access.[1] However, prevalence of behavioral or mental health disorders in NH's pediatric population is high compared to national averages.[2] Evidence of mental health impact on physical health, social health, and long-term life outcomes is well documented.[3] Mitigation of mental health concerns in pediatrics is thus important to support healthy development, reduce potential health risks, and avoid negative outcomes.[4] In 2019, the total number of children ages 0 to 17 in NH was 155,626.[5] According to a report published by the Substance Abuse and Mental Health Services Administration (SAMHSA), for the time period 2016-2019, the average prevalence rate for teens ages 12 to 17 years who experienced a major depressive episode was 15.2%.[6] Of these, 46.8% reported receiving depression care for this episode. Statewide, the 2019 NH Youth Risk Behavior Survey (YRBS) showed that in every county between 29.4% and 40.8% of youth felt sad or hopeless almost every day for 2 weeks, and between 15.8% and 22.4% of youth considered attempting suicide.[7] In 2018-2019, a cumulative 5,000 NH children ages 12 to 17 needed but did not receive treatment at a specialty facility for alcohol or illicit drug use in the past year.[8]

The 2019 National Survey of Children's Health showed that among NH children 3 to 17 years old, 14.5% had attention deficit disorder (ADD) or attention-deficit/hyperactivity disorder (ADHD), compared to 8.6% of all children in the U.S.[9] Further, the 2019 survey found that 32.3% of NH children 3 to 17 years old had 1 or more reported mental, emotional, developmental, or behavioral (MEDB) problem and/or qualified on the Children with Special Health Care Needs (CSHCN) screener questions on mental, emotional, and behavioral problems, compared to 22.1% of all U.S. children. MEDB problems were defined by 10 conditions: Tourette's syndrome, anxiety problems, depression, behavioral and conduct problems, developmental delay,

[1] America's Health Rankings. 2021 Annual Report, New Hampshire. https://www.americashealthrankings.org/learn/reports/2021-annual-report/state-summaries-new-hampshire

[2] National Data Center for Child & Adolescent Health. NSCH Mental Health Profile. http://childhealthdata.org/browse/data-snapshots/nsch-profiles/mental-health?geo=31

[3] American Psychological Association. Children's Mental Health. http://www.apa.org/pi/families/children-mental-health.aspx

[4] Asarnow JR, Rozenman M, Wiblin J, Zeltzer L. Integrated Medical-Behavioral Care Compared with Usual Primary Care for Child and Adolescent Behavioral Health: A Metaanalysis. JAMA Pediatr. 2015;169(10):929-937. doi:10.1001/jamapediatrics.2015.1141

[5] U. S. Census Bureau. QuickFacts: New Hampshire. https://www.census.gov/quickfacts/NH

[6] SAMHSA. Behavioral Health Barometer: NH, Volume 6. https://www.samhsa.gov/data/sites/default/files/reports/rpt32846/NewHampshire-BH-Barometer_Volume6.pdf

[7] Division of Public Health Services, NH Department of Health and Human Services. 2019 Youth Risk Behavior Survey (YRBS) Results. https://www.dhhs.nh.gov/dphs/hsdm/yrbs.htm

[8] SAMHSA, Center for Behavioral Health Statistics and Quality. National Survey on Drug Use and Health, 2018-2019. https://www.samhsa.gov/data/sites/default/files/reports/rpt32879/NSDUHsaeTotal2019/2019NSDUHsaeTotal.pdf

[9] National Survey of Children's Health, Health Resources and Services Administration, Maternal and Child Health Bureau. https://mchb.hrsa.gov/data/national-surveys

intellectual disability, speech, or other language disorder, learning disability, autism or autism spectrum disorder (ASD), and ADD/ADHD. The 2019-2020 National Survey of Children's Health found that 50.3% of NH children ages 3 to 17 with a mental or behavioral health condition received treatment or counseling in the past 12 months, compared to 52.3% nationwide.[10] Lastly, America's Health Rankings reported in 2019 that 12.7% of NH children ages 3 to 17 currently had an anxiety problem, compared to 7.5% of all U.S. children.[11]

As of October 19, 2021, the American Academy of Pediatrics (AAP), the American Academy of Child and Adolescent Psychiatry (AACAP), and the Children's Hospital Association (CHA) have declared a national state of emergency in child and adolescent mental health, as the COVID-19 pandemic continues to take its toll. The AAP reports that "between March and October of 2020, the percentage of emergency department visits for children with mental health emergencies rose by 24% for children ages 5 to 11 and 31% for children ages 12 to 17" across the U.S.[12] Simultaneously, the rate of self-injury and suspected suicide attempt emergency visits in the U.S. have increased by 45% for children ages 5 to 17 in the first 6 months of 2021, and by more than 50% for girls ages 12 to 17 in early 2021, as compared to the same time periods in 2019. The AAP also reports that "more than 140,000 U.S. children have experienced the death of a primary or secondary caregiver during the COVID-19 pandemic, with children of color disproportionately impacted."[12]

In summary, previous research has identified the need for increased pediatric mental healthcare within NH. A decade of discussion among providers, researchers, policymakers, and government officials has generated paths to solutions for this problem. Strategies taken by partners to address the issue have varied and continue to evolve with the state's changing demographics, workforce, and needs.

[10] National Survey of Children's Health, Health Resources and Services Administration, Maternal and Child Health Bureau. https://www.childhealthdata.org/browse/survey/results?q=8581&r=31

[11] America's Health Rankings. Anxiety in New Hampshire. https://www.americashealthrankings.org/explore/health-of-women-and-children/measure/anxiety/state/NH

[12] American Academy of Pediatrics. https://www.aap.org/en/news-room/news-releases/aap/2021/pediatricians-child-and-adolescent-psychiatrists-and-childrens-hospitals-declare-national-emergency-for-childrens-mental-health/

Purpose

The NH Mental Health Care Access in Pediatrics (MCAP) program is a collaborative effort of the NH Department of Health and Human Services and the NH Pediatric Improvement Partnership housed at the UNH Institute for Health Policy and Practice. Funded by the Health Resources and Services Administration, the focus of MCAP is to promote behavioral health integration in pediatric primary care. MCAP provides: 1) training to pediatric and family practice clinicians in assessing and treating common pediatric mental health conditions through an annual Project ECHO® learning series, 2) clinician-to-clinician teleconsultation services, and 3) an annually updated referral directory of pediatric mental/behavioral health services in New Hampshire. To inform its programming, MCAP funded this analysis of 2019 pediatric medical and pharmacy claims data from commercial and NH Medicaid payers. Specifically, MCAP sought to examine health care claims for NH's pediatric population to provide a descriptive analysis of:

1. The burden of pediatric mental health conditions as defined by the percentage of children under age 18 with mental health conditions,
2. Mental health conditions and comorbidities with other mental health conditions, and
3. Mental health medical and pharmaceutical service utilization to produce measures of treatment.

Data

Data from the New Hampshire Comprehensive Healthcare Information System (NH CHIS), NH's All-Payer Claims Database (APCD), and NH DHHS's Enterprise Business Intelligence (EBI) Data System were analyzed. Information about NH CHIS can be found on the website: **https://nhchis.com/**. The table below outlines the data and timeframes used in analysis:

Data	Payer and Source	Timeframe	Notes
Medical claims and eligibility	Commercial (NHCHIS)	January 2016 – December 2019	The analysis is limited to the top commercial medical insurers: Anthem, Cigna, Harvard Pilgrim, Tufts, Health Plans, Inc., Matthew Thornton, and Tufts Health Freedom. These carriers generally include more than 80% of the commercial medical claims in NHCHIS.
Medical claims and eligibility	NH Medicaid (NH DHHS EBI)	January 2016 – December 2019	MCO (Well Sense, NH Healthy Families, AmeriHealth) and FFS Claims
Pharmacy claims and eligibility	Commercial (NHCHIS)	January 2016 – December 2019	The analysis is limited to the top commercial pharmacy insurers: Cigna, Anthem, Harvard Pilgrim, Tufts Health Freedom, Caremark, Matthew Thornton, and Express Scripts. These carriers generally include more than 80% of the commercial pharmacy claims in NHCHIS.
Pharmacy claims and eligibility	NH Medicaid (NH DHHS EBI)	January 2016 – December 2019	MCO (Well Sense, NH Healthy Families, AmeriHealth) and FFS Claims

Criteria for Analytic Data Set:

- Members with at least 9 months of continuous enrollment in commercial or NH Medicaid insurance policies that originate in NH
- Commercial members ages 0-17
- NH Medicaid members ages 0-17

Note on Race and Ethnicity:

At this time, data are not analyzed by race and ethnicity. The examination and elimination of health disparities are important; however, at this time, race and ethnicity fields are not available/reliable in the claims data and therefore not included in the analysis.

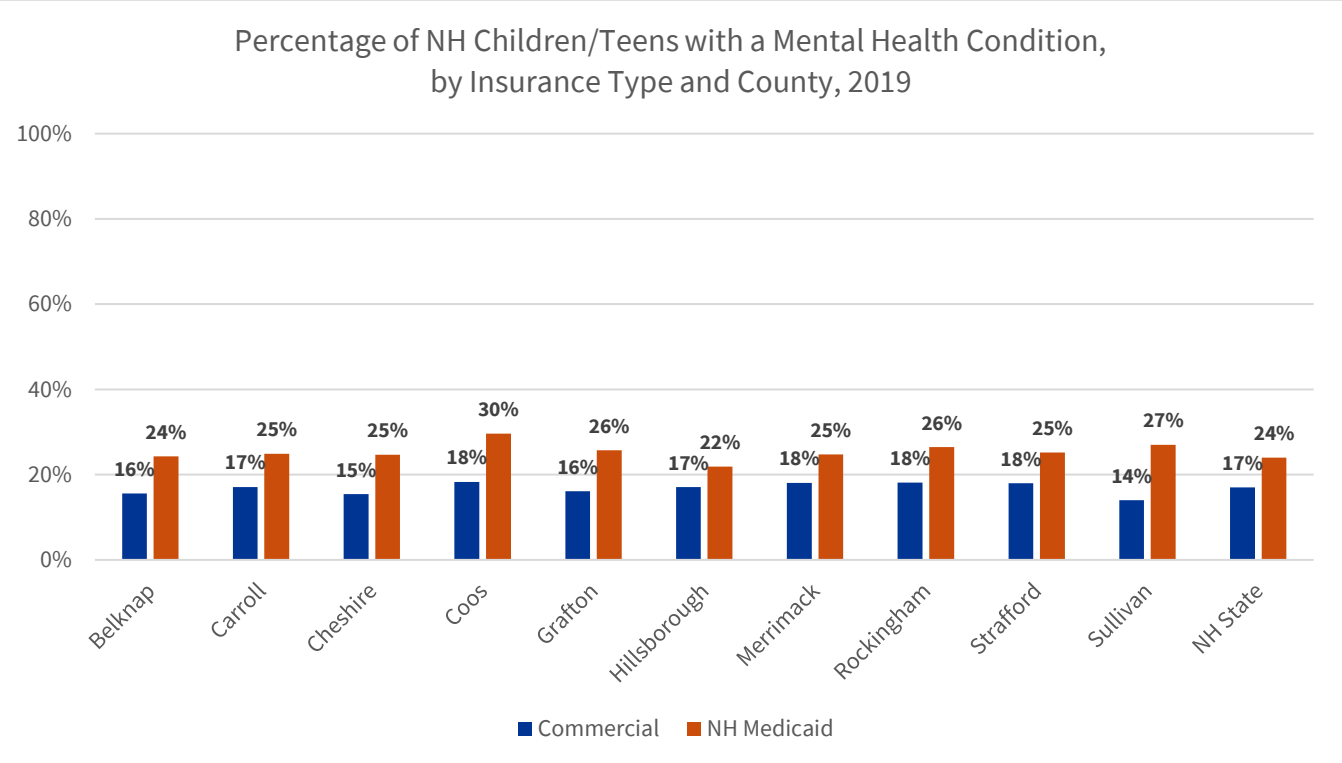
Chapter 1: Analysis of Pediatric Mental Health Conditions

To understand the scope and nature of pediatric mental health conditions in New Hampshire, medical claims for the period January 2019 to December 2019 were examined to produce measures of disease burden (eg, percentage of children with a specific mental health condition). Medical claims from the period January 2016 to December 2019 were also examined to identify trends in the burden of mental health conditions over time. Analysis was done by type of payer (commercial and NH Medicaid) and by county to determine any variation that may be related to characteristics of the population. For a list of ICD 10 diagnosis codes used for analysis, see **Appendix D**.

All Mental Health Conditions

To better understand the disease burden of mental health conditions among NH children and teens, claims data were first analyzed to estimate the percentage of children and teens who had any type of mental health condition, as determined by diagnosis codes, in 2019. Analysis was also done by type of payer (commercial and NH Medicaid) and by county.

Figure 1. Percentage of NH Children/Teens with a Mental Health Condition, by Insurance Type and County, in 2019



Results for All Mental Health Conditions

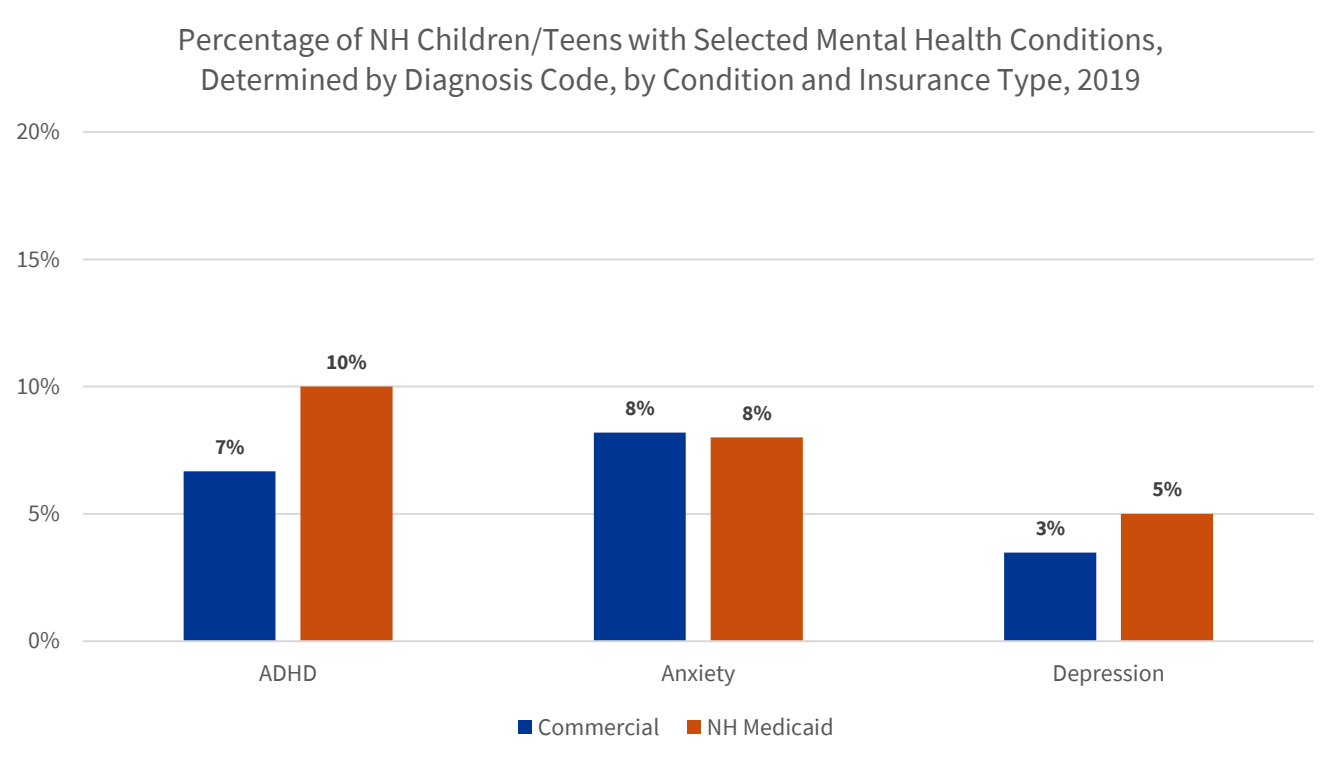
As reflected in **Figure 1**, 17% of commercially insured NH children had a mental health condition in 2019. County-level percentages among the commercial population ranged from 14% in Sullivan County to 18% in Coos, Merrimack, Rockingham, and Strafford Counties; see **Table A1** in **Appendix A** for more detail.

Similarly, 24% of children insured by NH Medicaid had a mental health condition in 2019. County-level percentages among the NH Medicaid population ranged from 22% in Hillsborough County to 30% in Coos County; see Table A1 in Appendix A for more detail.

Selected Mental Health Conditions by Diagnosis Code

Claims data were next analyzed to estimate the percentage of children and teens with ADHD, anxiety, and/or depression, determined by diagnosis code, in 2019. Analysis was also done by type of payer (commercial and NH Medicaid).

Figure 2. Percentage of NH Children/Teens with Selected Mental Health Conditions (ADHD, Anxiety, and Depression), Determined by Diagnosis Code, by Condition and Insurance Type, in 2019



Results for Selected Mental Health Conditions by Diagnosis Code

As illustrated by **Figure 2**, in 2019, 7% of the commercially insured NH children had an ADHD diagnosis; 8% had an anxiety diagnosis; 3% had a depression diagnosis. Examination of county-level percentages for

these 3 mental health conditions reveals similar patterns to state-level percentages. The percentage of children and teens with an ADHD diagnosis ranged from 5% in Belknap and Sullivan Counties to 8% in Coos County; anxiety diagnosis ranged from 6% in Sullivan County to 9% in Merrimack, Rockingham, and Strafford Counties; depression diagnosis rates were similar across all counties. See **Tables A2-A4** in **Appendix A** for more detail.

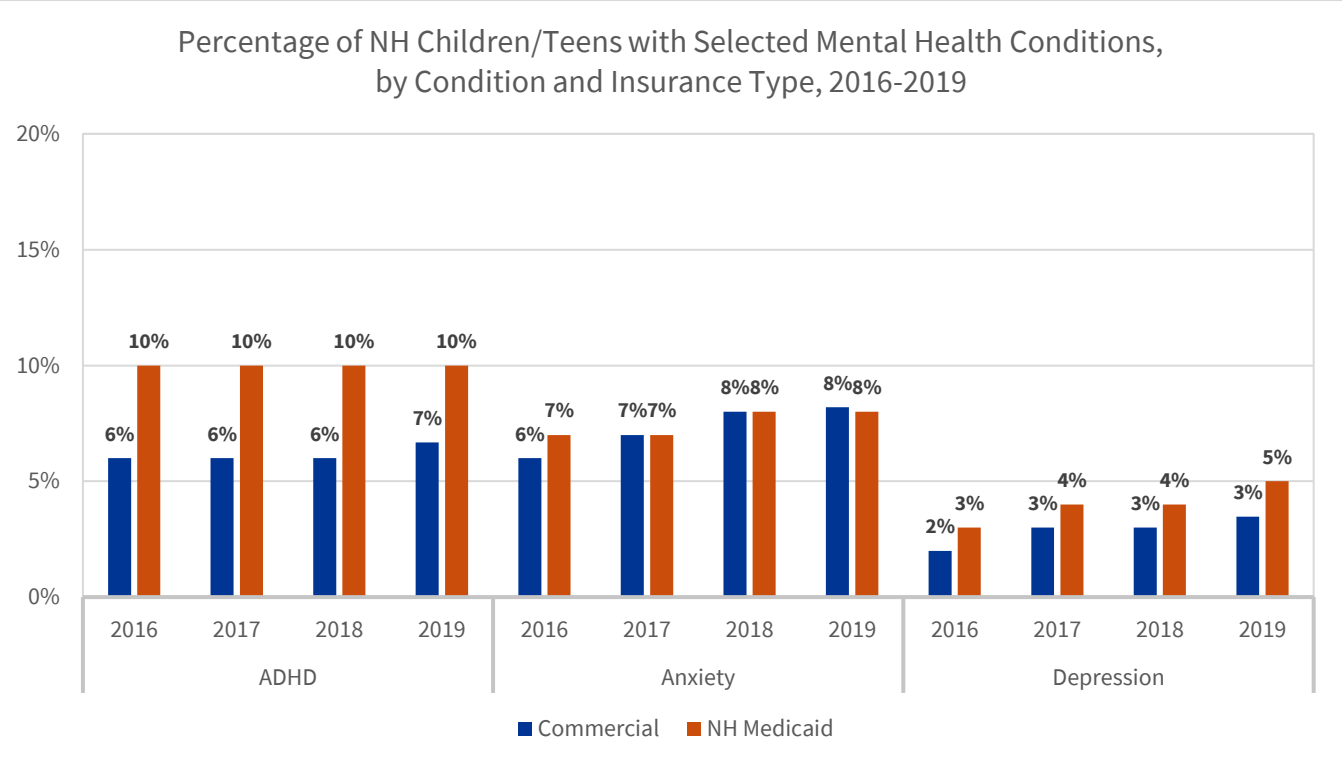
Similarly, in 2019, 10% of the NH Medicaid insured children had an ADHD diagnosis; 8% had an anxiety diagnosis; 5% had a depression diagnosis. Likewise, examination of county-level percentages for these 3 mental health conditions among NH Medicaid insured children reveals similar patterns to state-level percentages. The range of children with an ADHD diagnosis ranged from 9% in Belknap, Hillsborough, and Merrimack Counties to 15% in Coos County; anxiety diagnosis ranged from 7% in Hillsborough County to 11% in Rockingham County; depression diagnosis ranged from 4% in Belknap, Hillsborough, and Merrimack Counties to 6% in Rockingham County; see Tables A2-A4 in Appendix A for more detail.

Slightly higher rates of mental health conditions among the NH Medicaid population could be due, in part, to the fact that having certain diagnoses can be a qualification for receiving Medicaid coverage.

Selected Mental Health Conditions, 2016-2019

Further analysis of claims data determined the percentage of children and teens with diagnoses of ADHD, depression, and anxiety from 2016 to 2019. Again, analysis was done by type of payer (commercial and NH Medicaid).

Figure 3. Percentage of NH Children/Teens with Selected Mental Health Conditions (ADHD, Anxiety, and Depression), by Condition and Insurance Type, From 2016 to 2019



Results for Selected Mental Health Conditions, 2016-2019

As reflected in **Figure 3**, the percentage of commercially insured NH children and teens with each of the 3 mental health conditions (anxiety, ADHD, and depression) increased slightly from 2016 to 2019. The percentage of children and teens with an anxiety diagnosis increased from 6% to 8%; ADHD diagnosis increased from 6% to 7%; depression diagnosis increased from 2% to 3%; see **Table A5** in **Appendix A** for more detail.

Likewise, the percentage of NH Medicaid insured children and teens with each of the 3 mental health conditions remained stable or increased slightly from 2016 to 2019. The percentage of children and teens with an anxiety diagnosis increased from 7% to 8%; ADHD diagnosis remained stable at 10%; depression diagnosis increased from 3% to 5%; see Table A5 in Appendix A for more detail.

Chapter 2: Analysis of Pediatric Mental Health Conditions and Comorbidities with Other Mental Health Conditions

The scope and impact of mental health conditions and comorbidities with other mental health conditions on NH children and teens were examined through medical claims for the period January 2019 to December 2019 to produce measures of comorbidity with other mental health conditions (eg, rate of children and teens with a specific mental health condition and comorbidities with other mental health conditions). As previously, analysis was done by type of payer (commercial and NH Medicaid). For a list of ICD 10 diagnosis codes used for analysis, see Appendix D.

Mental Health Conditions and Comorbidities with Other Mental Health Conditions

The frequency of mental health conditions and comorbidities with other mental health conditions in NH children and teens with ADHD, anxiety, and depression, were determined by claims analysis, which identified the percentage of children and teens with each of these 3 diagnoses and comorbid mental health diagnoses during 2019. Analysis was also done by type of payer (commercial and NH Medicaid).

Figure 4. Percentage of NH Children/Teens Diagnosed with ADHD and Had Comorbid Mental Health Diagnoses, by Comorbid Condition and Insurance Type, in 2019

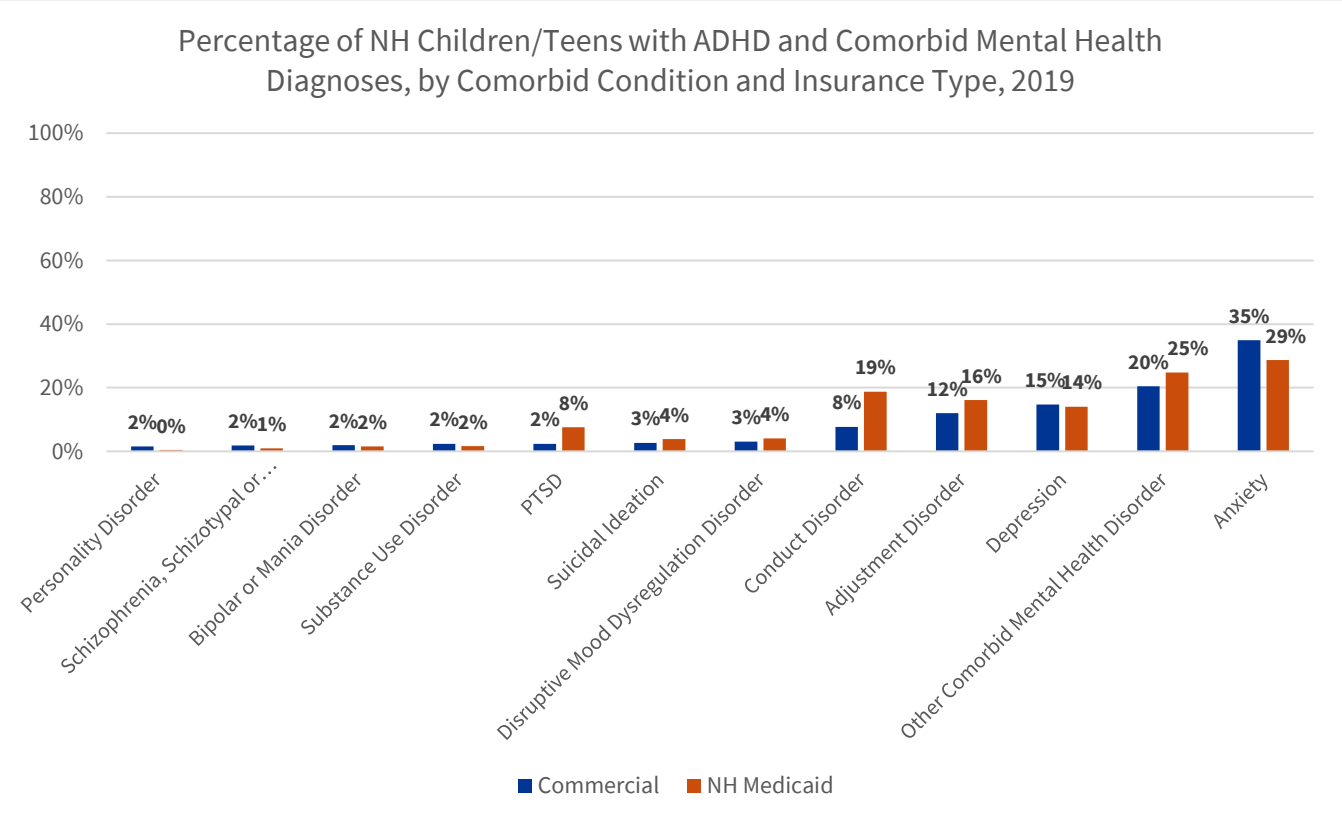


Figure 5. Percentage of NH Children/Teens Diagnosed with Anxiety and Had Comorbid Mental Health Diagnoses, by Comorbid Condition and Insurance Type, in 2019

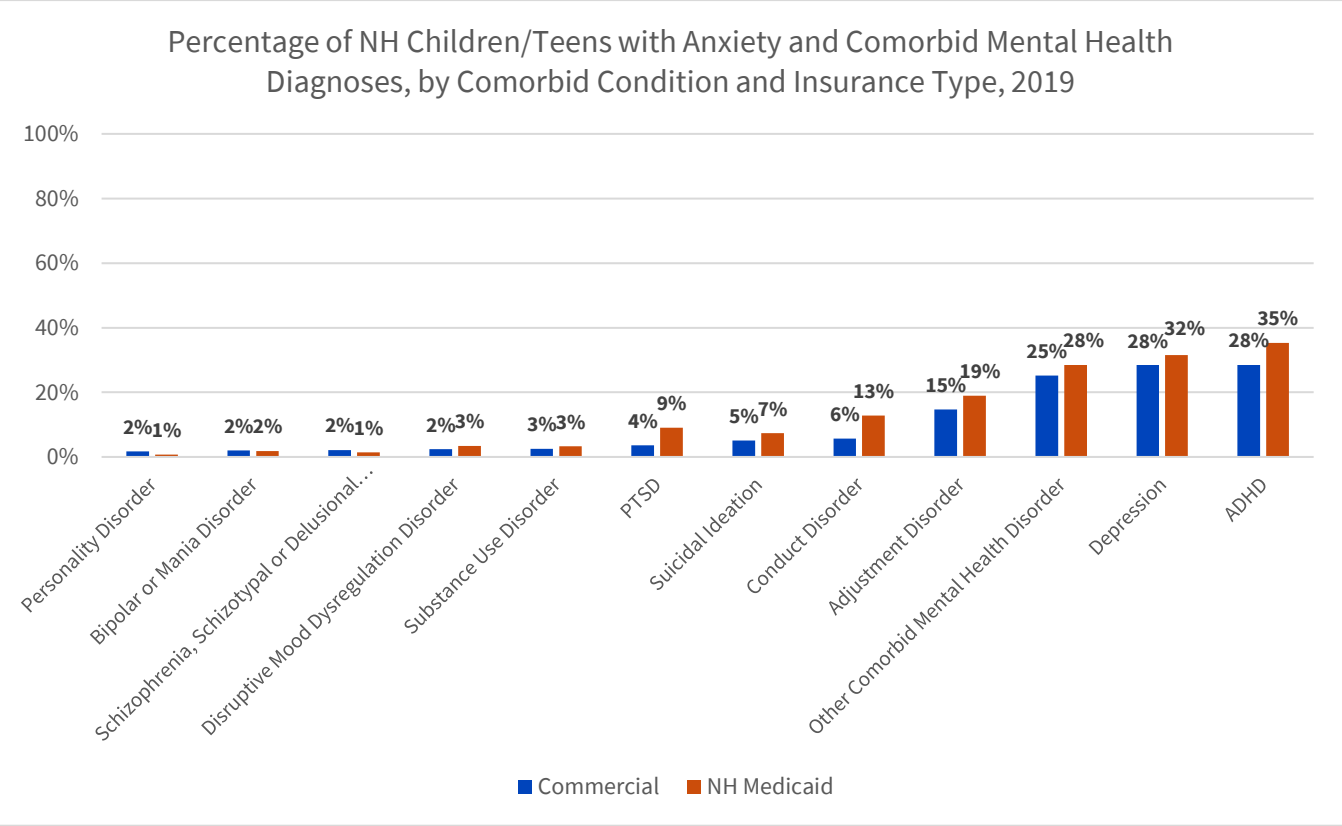
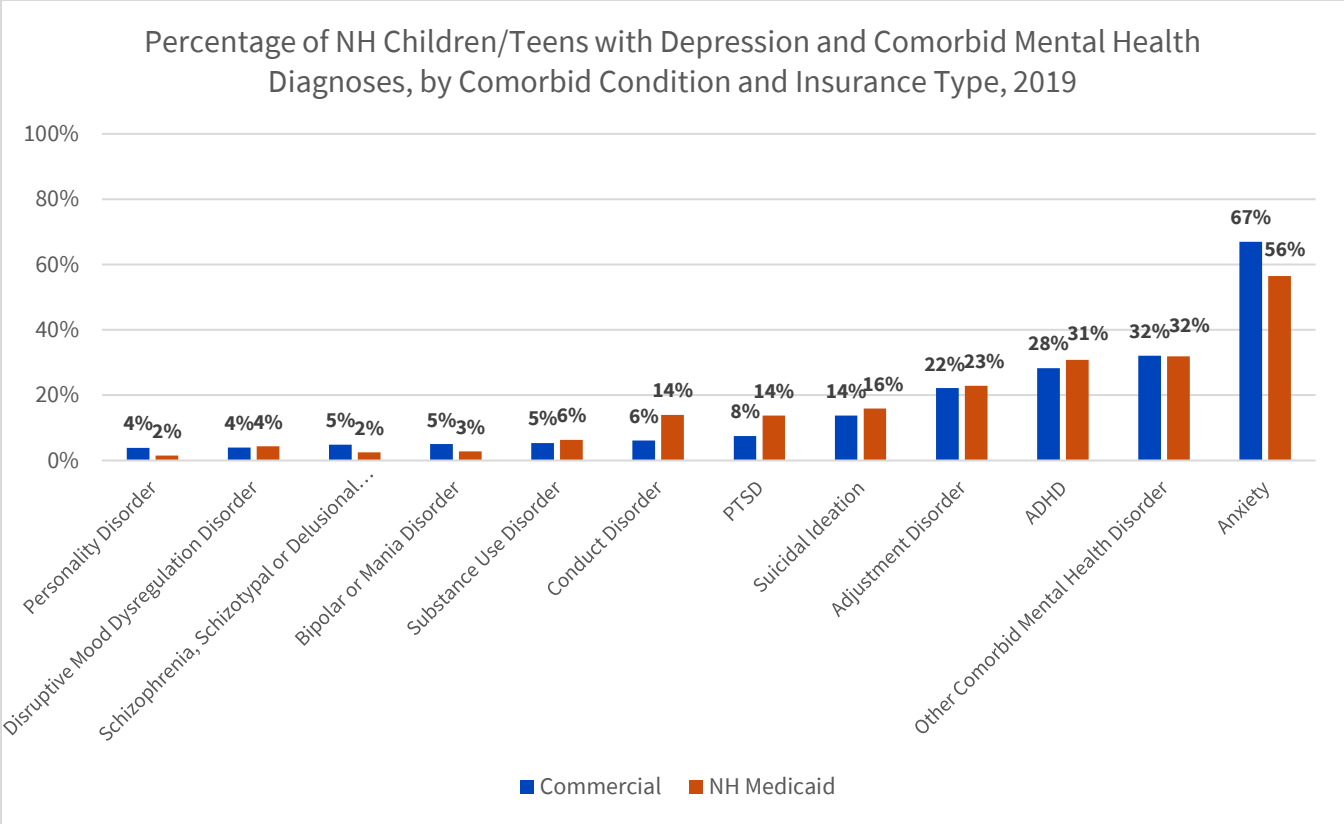


Figure 6. Percentage of NH Children/Teens Diagnosed with Depression and Had Comorbid Mental Health Diagnoses, by Comorbid Condition and Insurance Type, in 2019



Results for Mental Health Conditions and Comorbidities with Other Mental Health Conditions

As shown in **Figure 4**, the most frequently occurring comorbid mental health diagnoses among commercially insured NH children and teens with an ADHD diagnosis were anxiety, other comorbid mental health disorder, depression, adjustment disorder, and conduct disorder; see **Table B1** in **Appendix B** for more details.

As shown in **Figure 5**, among commercially insured NH children and teens with an anxiety diagnosis, the most frequently occurring comorbid mental health diagnoses were ADHD, depression, other comorbid mental health disorder, adjustment disorder, and conduct disorder; see **Table B2** in **Appendix B** for more details.

Lastly, as shown in **Figure 6**, among commercially insured NH children and teens with a depression diagnosis, the most frequently occurring comorbid mental health diagnoses were anxiety, other comorbid mental health disorder, ADHD, adjustment disorder, and suicidal ideation; see **Table B3** in **Appendix B** for more details.

Likewise, as shown in Figure 4, the most frequently occurring comorbid mental health diagnoses among NH Medicaid insured NH children and teens with an ADHD diagnosis were anxiety, other comorbid mental health disorder, conduct disorder, adjustment disorder, and depression; see Table B1 in Appendix B for more details.

As shown in Figure 5, among NH Medicaid insured NH children and teens with an anxiety diagnosis, the most frequently occurring comorbid mental health diagnoses were ADHD, depression, other comorbid mental health disorder, adjustment disorder, and conduct disorder; see Table B2 in Appendix B for more details.

Lastly, as shown in Figure 6, among NH Medicaid insured NH children and teens with a depression diagnosis, the most frequently occurring comorbid mental health diagnoses were anxiety, other comorbid mental health disorder, ADHD, adjustment disorder, and suicidal ideation; see Table B3 in Appendix B for more details.

Chapter 3: Analysis of Pediatric Mental Health Care and Pharmaceutical Service Utilization

To understand the scope and nature of mental health care service utilization in New Hampshire, medical claims for the period January 2019 to December 2019 were examined to produce measures of treatment (eg, percentage of children and teens with a mental health condition that received any mental health service such as counseling or psychotherapy). Analysis was also performed to quantify the amount of mental health services for mental health conditions children and teens received in 2019 (eg, percentage of children that received 1 mental health service, 2 to 5 services, and 6 or more services). Further, to understand the history of mental health care service utilization, medical claims for the periods of January 2016 to December 2019 were also examined to produce trend data. Analysis was done by type of payer (commercial and NH Medicaid) to determine any variation that may be related to characteristics of the population. For the utilization, see **Appendix E** for procedure codes. Members were included in the analysis if they had at least 9 months of continuous enrollment in a Commercial or NH Medicaid insurance policy originating in New Hampshire.

Additionally, to understand the scope and nature of prescribing patterns for mental health conditions among NH children and teens, pharmacy claims for the period of January 2019 to December 2019 were examined to produce measures of treatment (eg, percentage of children that received any pharmaceutical treatment for mental health conditions). For prescription analysis, see Appendix E for drug classes included. Analysis of both medical and pharmacy claims for the period of January 2019 to December 2019 was also conducted to produce measures of any mental health treatment (eg, percentage of children that received any treatment (pharmaceutical or non-pharmaceutical) for mental health conditions), as seen in medical claims or prescription for a specific pharmaceutical class of drugs as seen in pharmacy claims. Analysis was done by type of payer (commercial and NH Medicaid) to determine any variation that may be related to characteristics of the population.

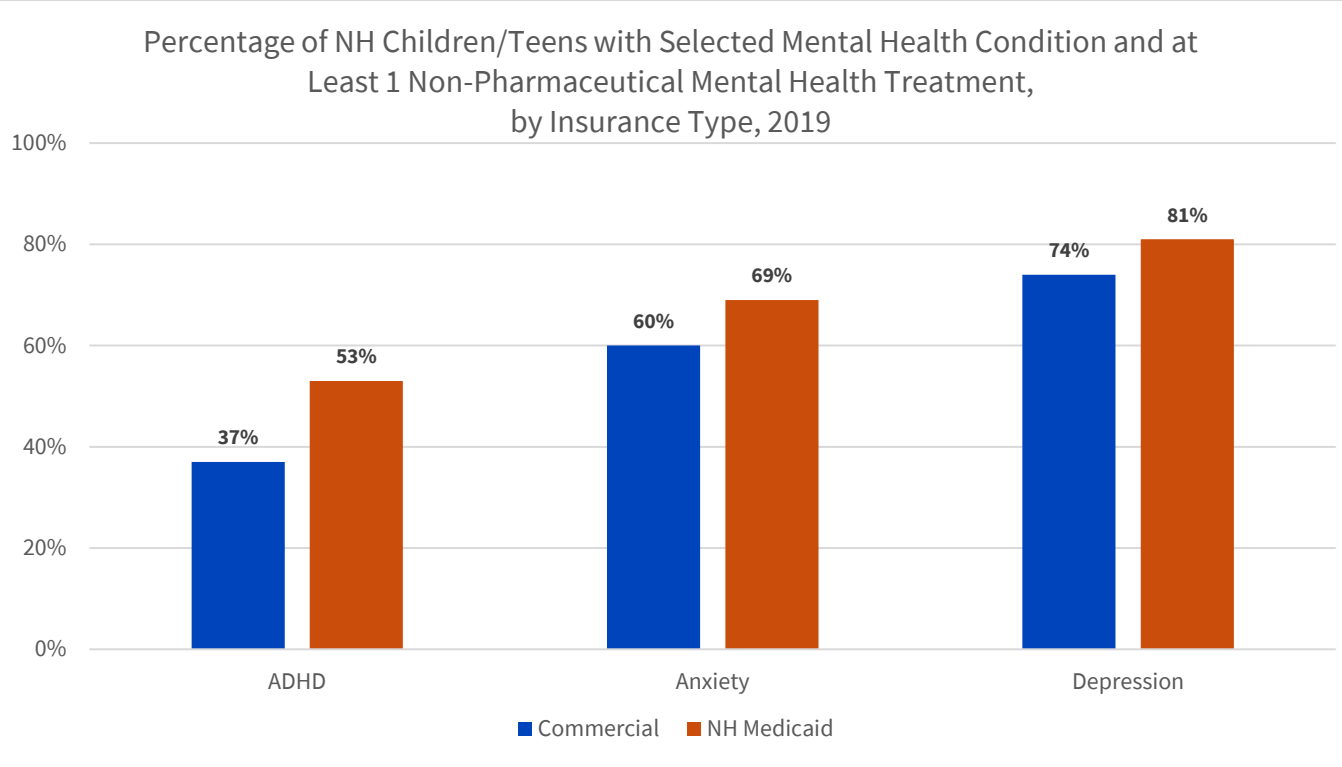
Finally, to further understand the scope of prescribing patterns among NH children and teens, pharmacy claims for the calendar year 2019 for commercial claims and calendar years 2019 and 2020 for NH Medicaid were examined to determine the top 20 pharmaceutical classes of drugs prescribed to children and teens in each year.[****] Analysis was done by type of payer (commercial and NH Medicaid) to determine any variation that may be related to characteristics of the population.

Mental Health Care Service Utilization

Medical claims data were analyzed to produce measures of non-pharmaceutical mental health treatment, such as counseling and psychotherapy in order to better understand the scope of mental health care service utilization among NH children and teens in 2019. As with previous analyses, further analysis was also done by type of payer (commercial and NH Medicaid).

[****] It is important to note that a drug fill on a pharmacy claim does not indicate medication adherence.

Figure 7. Percentage of NH Children/Teens with Selected Mental Health Condition and at Least 1 Non-Pharmaceutical Mental Health Treatment, by Insurance Type, in 2019



Results for Mental Health Care Service Utilization

As illustrated by **Figure 7**, in 2019, 37% of commercially insured NH children included in the analysis who had an ADHD diagnosis had at least 1 non-pharmaceutical mental health treatment.[††††] This percentage varied by county, ranging from 27% in Coos County to 44% in Merrimack County. During the same time period, 60% of commercially insured children who had an anxiety diagnosis had at least 1 non-pharmaceutical mental health treatment, ranging from 46% in Grafton County to 65% in Merrimack County. Lastly, 74% of commercially insured children who had a depression diagnosis had at least 1 non-pharmaceutical mental health treatment. This percentage varied by county, ranging from 61% in Sullivan County to 79% in Belknap County; see **Table C1** in **Appendix C** for more detail.

In 2019, among NH Medicaid insured children included in the analysis, 53% who had an ADHD diagnosis had at least 1 non-pharmaceutical mental health treatment. This percentage varied by county, ranging from 46% in Carroll County to 61% in Rockingham County. Of NH Medicaid insured children, 69% who had an anxiety diagnosis had at least 1 non-pharmaceutical mental health treatment, ranging from 57% in Sullivan County to 76% in Rockingham County. Finally, 81% of NH Medicaid insured children who had a depression diagnosis had at least 1 non-pharmaceutical mental health treatment. This percentage varied by county,

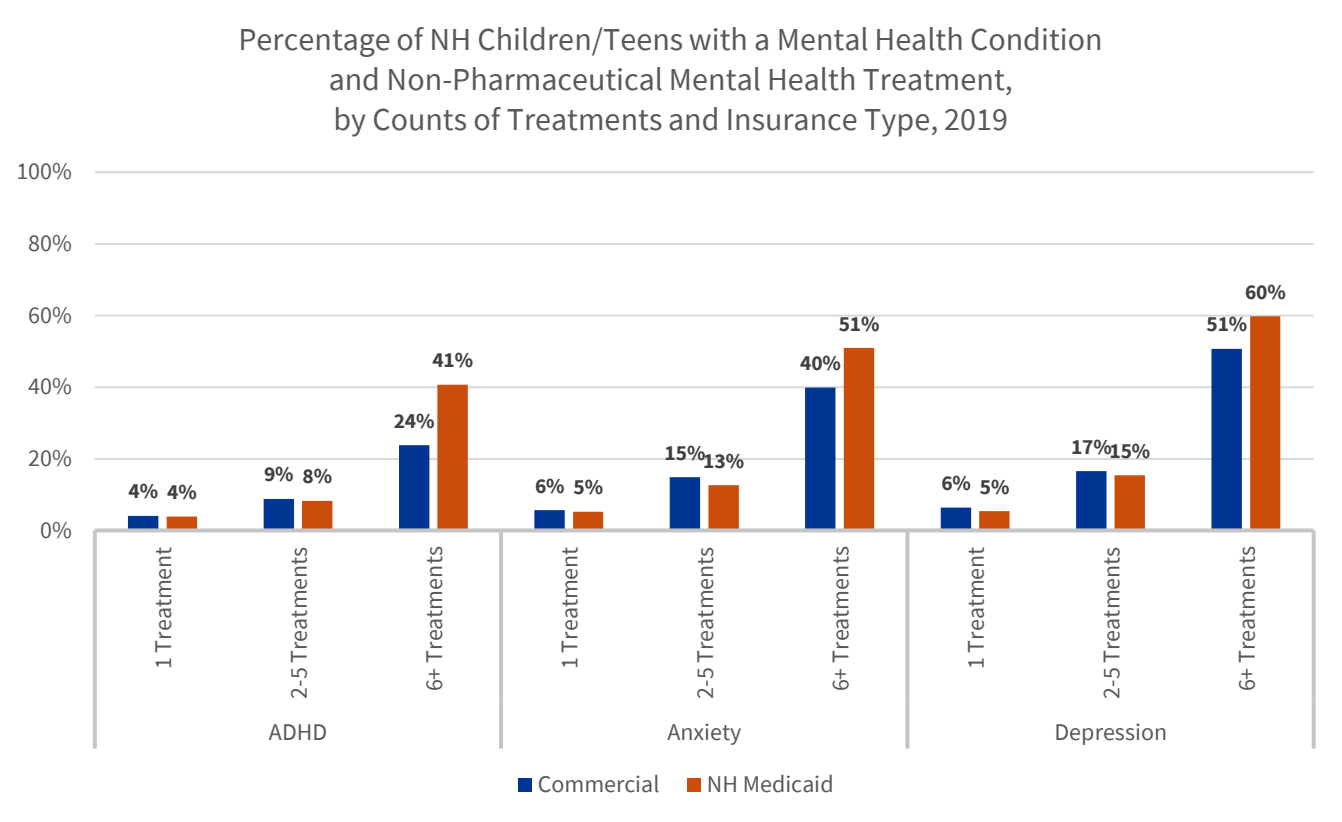
[††††] Non-pharmaceutical mental health treatment includes only mental health treatment appearing in medical claims.

ranging from 72% in Sullivan County to 90% in Rockingham County; see Table C1 in Appendix C for more detail.

Mental Health Care Service Utilization by Number of Claims

To better understand the scope of mental health care service utilization among NH children and teens, medical claims data were analyzed to quantify the amount of non-pharmaceutical mental health treatment children and teens received in 2019. As previously, analysis was also done by type of payer (commercial and NH Medicaid).

Figure 8. Percentage of NH Children/Teens with a Mental Health Condition and Non-Pharmaceutical Mental Health Treatment, by Counts of Treatments and Insurance Type, in 2019



Results for Mental Health Care Service Utilization by Number of Claims

As illustrated by **Figure 8**, in 2019, 4% of commercially insured NH children included in the analysis who had an ADHD diagnosis had 1 non-pharmaceutical mental health treatment; 9% had 2 to 5 treatments; 24% had 6 or more treatments. During the same time period, 6% of commercially insured children who had an anxiety diagnosis had 1 non-pharmaceutical mental health treatment; 15% had 2 to 5 treatments; 40% had 6 or more treatments. Lastly, 6% of commercially insured children who had a depression diagnosis had 1 non-

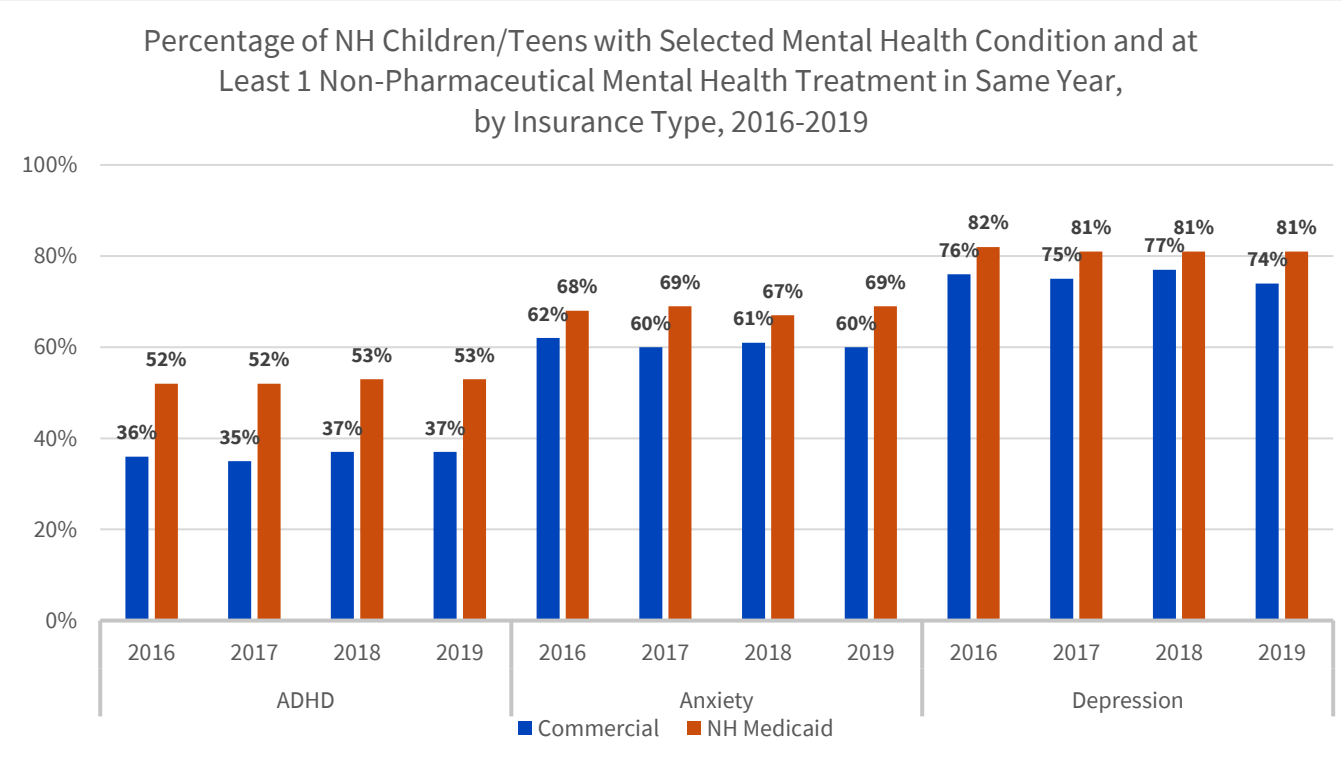
pharmaceutical mental health treatment; 17% had 2 to 5 treatments; 51% had 6 or more treatments; see **Table C2** in **Appendix C** for more detail.

In 2019, among NH Medicaid insured children included in the analysis, 4% who had an ADHD diagnosis had 1 non-pharmaceutical mental health treatment; 8% had 2 to 5 treatments; 41% had 6 or more treatments. During the same time period, 5% of NH Medicaid insured children who had an anxiety diagnosis had 1 non-pharmaceutical mental health treatment; 13% had 2 to 5 treatments; 51% had 6 or more treatments. Lastly, 5% of NH Medicaid insured children who had a depression diagnosis had 1 non-pharmaceutical mental health treatment; 15% had 2 to 5 treatments; 60% had 6 or more treatments; see Table C2 in Appendix C for more detail.

Mental Health Care Service Utilization, 2016-2019

To understand the history of mental health care service utilization among NH children and teens, medical claims data were analyzed to produce trend data of mental health non-pharmaceutical treatment from 2016 to 2019. Analysis was also done by type of payer (commercial and NH Medicaid).

Figure 9. Percentage of NH Children/Teens with Selected Mental Health Condition and at Least 1 Non-Pharmaceutical Mental Health Treatment in the Same Year, by Insurance Type, From 2016 to 2019



Results for Mental Health Care Service Utilization, 2016-2019

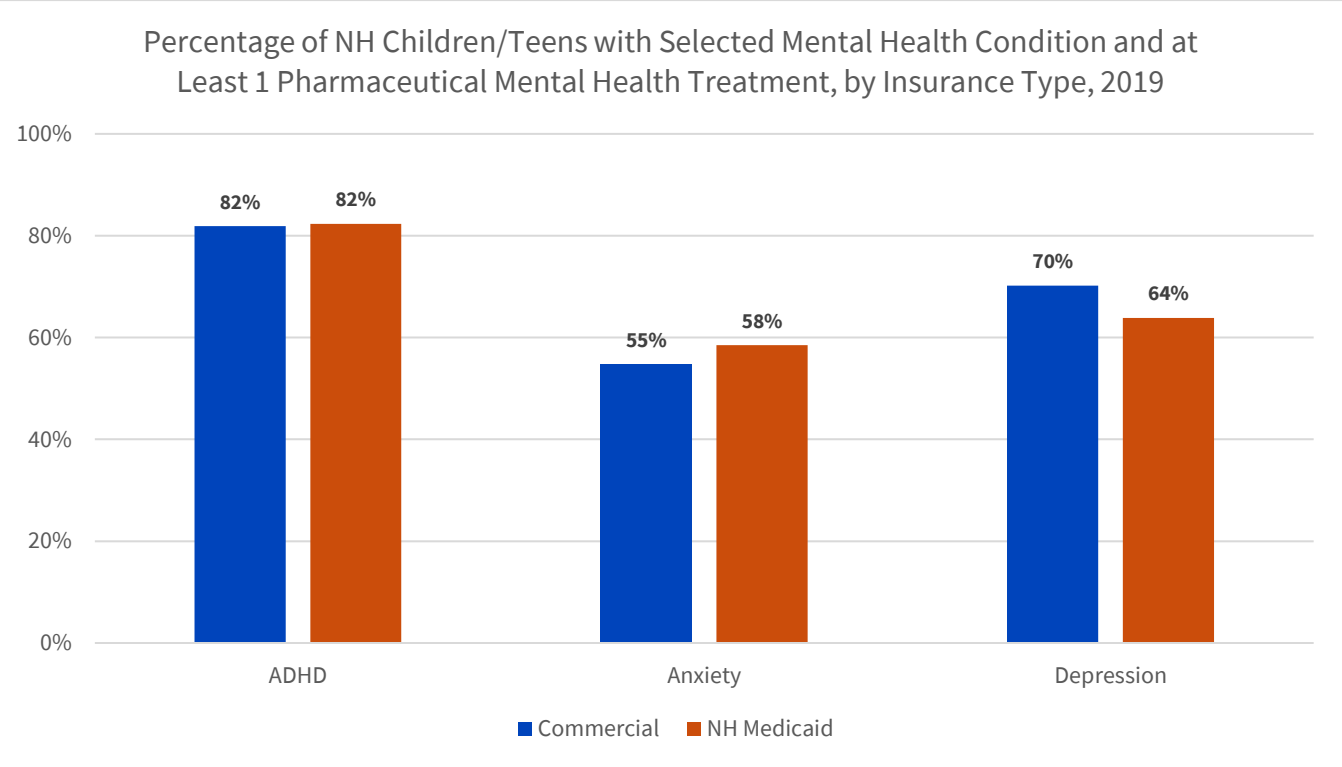
As shown in **Figure 9**, from 2016 to 2019, the percentage of commercially insured NH children with each of the selected mental health diagnoses and at least 1 non-pharmaceutical mental health treatment remained stable over the 4-year period. The percentage of children with ADHD and at least 1 non-pharmaceutical mental health treatment increased slightly from 36% to 37%, the percentage with anxiety and at least 1 non-pharmaceutical mental health treatment decreased slightly from 62% to 60%, and the percentage with depression and at least 1 non-pharmaceutical mental health treatment decreased slightly from 76% to 74%; see **Table C3** in **Appendix C** for more detail.

Likewise, from 2016 to 2019, the percentage of NH Medicaid insured children with each of the selected mental health diagnoses and at least 1 non-pharmaceutical mental health treatment remained stable over the 4-year period. The percentage of children with ADHD and at least 1 non-pharmaceutical mental health treatment increased slightly from 52% to 53%, the percentage with anxiety and at least 1 non-pharmaceutical mental health treatment increased slightly from 68% to 69%, and the percentage with depression and at least 1 non-pharmaceutical mental health treatment decreased slightly from 82% to 81%; see Table C3 in Appendix C for more detail.

Mental Health Pharmaceutical Service Utilization

Pharmacy claims data were analyzed to produce measures of pharmaceutical mental health treatment to help understand the scope of prescribing patterns and mental health care pharmaceutical service utilization among NH children and teens in 2019. Analysis was also done by type of payer (commercial and NH Medicaid).

Figure 10. Percentage of NH Children/Teens with Selected Mental Health Condition and at Least 1 Pharmaceutical Mental Health Treatment, by Insurance Type, in 2019



Results for Mental Health Pharmaceutical Service Utilization

As illustrated by **Figure 10**, in 2019, 82% of commercially insured NH children included in the analysis who had an ADHD diagnosis had at least 1 pharmaceutical mental health treatment,[‡‡‡‡] 55% who had an anxiety diagnosis had at least 1 pharmaceutical mental health treatment, and 70% who had a depression diagnosis had at least 1 pharmaceutical mental health treatment; see **Table C4** in **Appendix C** for more detail.

Likewise, in 2019, 82% of NH Medicaid insured children included in the analysis who had an ADHD diagnosis had at least 1 pharmaceutical mental health treatment, 58% who had an anxiety diagnosis had at least 1 pharmaceutical mental health treatment, and 64% who had a depression diagnosis had at least 1 pharmaceutical mental health treatment; see Table C4 in Appendix C for more detail.

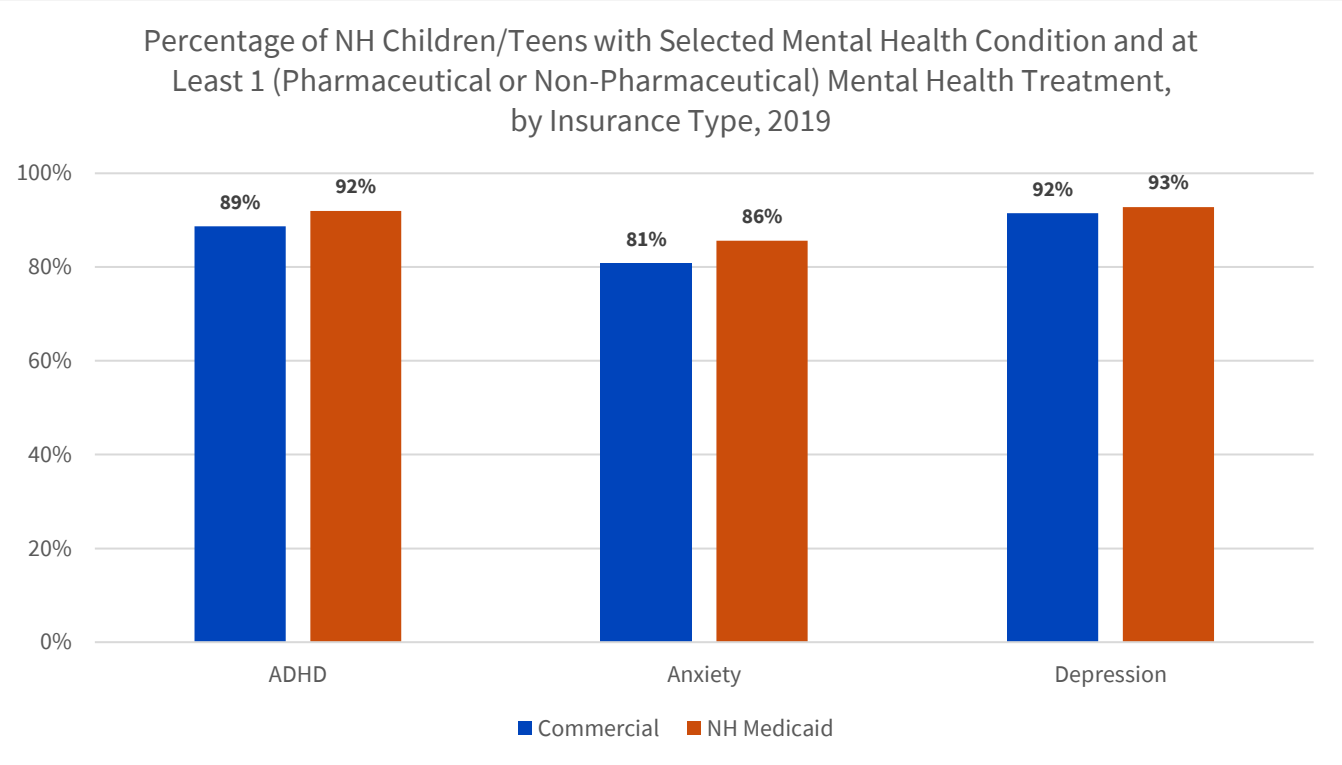
Mental Health Care or Pharmaceutical Service Utilization

Medical and pharmacy claims data were analyzed to produce measures of any (pharmaceutical or non-pharmaceutical) mental health treatment in order to understand the scope of mental health care service utilization among NH children and teens in 2019. To be included in this analysis, a child or teen must have

[‡‡‡‡] Pharmaceutical mental health treatment includes only mental health treatment appearing in pharmacy claims.

been enrolled in both a pharmacy and medical insurance plan for at least nine months of the analytic period. Analysis was also done by type of payer (commercial and NH Medicaid).

Figure 11. Percentage of NH Children/Teens with Selected Mental Health Condition and at Least 1 (Pharmaceutical or Non-Pharmaceutical) Mental Health Treatment, by Insurance Type, in 2019



Results for Mental Health Care or Pharmaceutical Service Utilization

As illustrated by **Figure 11**, in 2019, 89% of commercially insured NH children included in the analysis who had an ADHD diagnosis had at least 1 (pharmaceutical or non-pharmaceutical) mental health treatment, 81% who had an anxiety diagnosis had at least 1 mental health treatment, and 92% who had depression had at least 1 mental health treatment; see **Table C5** in **Appendix C** for more detail.[§§§§]

Similarly, in 2019, 92% of NH Medicaid insured children included in the analysis who had an ADHD diagnosis had at least 1 (pharmaceutical or non-pharmaceutical) mental health treatment, 86% who had an anxiety diagnosis had at least 1 mental health treatment, and 93% who had depression had at least 1 mental health treatment; see Table C5 in Appendix C for more detail.

[§§§§] Pharmaceutical or non-pharmaceutical mental health treatment includes mental health treatment appearing in medical or pharmacy claims.

Top 20 Pharmaceutical Classes, 2019-2020

Pharmacy claims were analyzed to determine the top 20 pharmaceutical classes of drugs prescribed to children and teens. When this analysis was completed, pharmacy claims data for the commercial population was available for 2019 only (See Table 1). For NH Medicaid, data for both 2019 and 2020 were available and included (See Table 2).

Table 1. Prescriptions per 1,000 Members for the Top 20 Pharmaceutical Classes by Total Scripts Among NH Children/Teens Insured Commercially, in 2019

Pharmaceutical Class[a]	**Prescriptions per 1,000 Members for the Top 20 Pharmaceutical Classes by Total Scripts Among Children/Teens Insured Commercially, 2019**
CNS Stimulants	468.76
Antidepressants	363.41
Penicillins	359.74
Dermatological Agents	301.35
Sex Hormones	219.28
Bronchodilators	203.70
Anticonvulsants	126.56
Antiadrenergic Agents, Centrally Acting	119.70
Cephalosporins	115.78
Ophthalmic Preparations	103.03
Adrenal Cortical Steroids	102.32
Macrolide Derivatives	90.70
Leukotriene Modifiers	86.46
Respiratory Inhalant Products	73.82
Analgesics	72.56
Antipsychotics	65.02
Minerals and Electrolytes	62.29
Vasopressors	52.23
Antiviral Agents	46.25
Otic Preparations	45.37

[a]Pharmaceutical classes in bold are used for mental health treatment.

Table 2. Prescriptions per 1,000 Members for the Top 20 Pharmaceutical Classes by Total Scripts Among Children/Teens Insured by NH Medicaid, in 2019 and 2020

Pharmaceutical Class[b]	Prescriptions per 1,000 Members for the Top 20 Pharmaceutical Classes by Total Scripts Among Children/Teens Insured by NH Medicaid, 2019	Prescriptions per 1,000 Members for the Top 20 Pharmaceutical Classes by Total Scripts Among Children/Teens Insured by NH Medicaid, 2020	Percent Change from 2019 to 2020
CNS Stimulants	853.12	821.95	-4%
Antidepressants	493.34	525.55	7 %
Antiadrenergic Agents, Centrally Acting	421.04	460.73	9%
Penicillins	362.35	193.36	-47%
Bronchodilators	322.72	271.08	-16%
Dermatological Agents	305.53	284.17	-7%
Antihistamines	236.30	227.59	-4%
Anticonvulsants	235.50	236.51	0%
Antipsychotics	153.16	164.44	7%
Sex Hormones	144.06	141.04	-2%
Leukotriene Modifiers	128.35	119.49	-7%
Cephalosporins	118.37	74.66	-37%
Adrenal Cortical Steroids	106.00	72.14	-32%
Anxiolytics, Sedatives, and Hypnotics	105.91	112.37	6%
Respiratory Inhalant Products	101.48	98.01	-3%
Ophthalmic Preparations	98.27	64.62	-34%
Analgesics	94.42	79.60	-16%
Nasal Preparations	82.24	72.47	-12%
Macrolide Derivatives	79.98	38.38	-52%
Laxatives	74.42	73.33	-1%

[b]*Pharmaceutical classes in bold are used for mental health treatment.*

Results for Top 20 Pharmaceutical Classes, 2019-2020

As shown in **Table 1**, in 2019, the pharmaceutical class with the most prescriptions per 1,000 members by total scripts among commercially insured NH children was Central Nervous System (CNS) stimulants with 469 prescriptions per 1,000 members. For the purpose of this analysis, CNS stimulants, in addition to anxiolytics, sedatives, and hypnotics, antipsychotics, centrally acting antiadrenergic agents, and antidepressants have been defined as pharmaceutical mental health treatment. Other pharmaceutical mental health treatments among the top 20 pharmaceutical classes for commercially insured children were antidepressants with 363 prescriptions per 1,000 members, antiadrenergic agents, centrally acting with 120 prescriptions per 1,000 members, and antipsychotics with 65 prescriptions per 1,000 members. Of note, the number of scripts filled

does not necessarily reflect the volume of medication dispensed as it does not reflect day supply (ie, some medications such as CNS stimulants are classified as controlled substances and can only be dispensed in 30-day increments).

Likewise, as shown in **Table 2**, in 2019, the pharmaceutical class with the most prescriptions per 1,000 members by total scripts among NH Medicaid insured children was also CNS stimulants with 853 prescriptions per 1,000 members. Other pharmaceutical mental health treatments among the top 20 pharmaceutical classes for NH Medicaid insured children in 2019 were antidepressants with 493 prescriptions per 1,000 members, centrally acting antiadrenergic agents with 421 prescriptions per 1,000 members, antipsychotics with 153 prescriptions per 1,000 members, and anxiolytics, sedatives, and hypnotics with 106 prescriptions per 1,000 members. In 2020, all 5 of these pharmaceutical mental health treatment-related classes remained in the top 20 pharmaceutical classes by total scripts. Rates of prescriptions per 1,000 members increased for 4 of these 5 classes from 2019 to 2020. Centrally acting antiadrenergic agents increased by 9%, antidepressants and antipsychotics each increased by 7%, and anxiolytics, sedatives, and hypnotics increased by 6%. Prescriptions per 1,000 members for CNS stimulants, however, decreased by 4% from 2019 to 2020.

Chapter 4: Conclusions

Summary of Report Results

Mental health diagnoses among NH children and teens with enrollment in a medical insurance plan in 2019 were common and have remained stable over time. In 2019, 17% of NH children and teens insured commercially and 24% of those insured by Medicaid had a medical claim with a diagnosis code for a mental health condition. Depression, anxiety, and ADHD were 3 common mental health diagnoses reported in 2019 claims data for both commercially and Medicaid insured NH children and teens. In 2019, 3%, 7%, and 8%, respectively, of commercially insured NH children and teens had a diagnosis of depression, ADHD, and anxiety. For Medicaid insured NH children and teens, 5%, 8%, and 10%, respectively, had a diagnosis of depression, anxiety, and ADHD. Trend data for the 2016 to 2019 time period for both commercially and Medicaid insured NH children and teens remained stable over time for all 3 mental health conditions. For both commercially and Medicaid insured NH children and teens, these 3 diagnoses frequently co-occurred with each other. For example, among commercially insured NH children and teens with anxiety, 28% had a comorbid mental health diagnosis of depression, and likewise, 28% had a comorbid mental health diagnosis of ADHD. For Medicaid insured NH children and teens with anxiety, the percentages were 32% and 35%, respectively.

Among NH children and teens who had a medical or pharmaceutical claim in 2019 and a diagnosis of ADHD, depression, or anxiety, the majority received at least 1 mental health treatment (either a mental health care service or a pharmaceutical). For commercially insured NH children and teens with depression, ADHD, or anxiety, 92%, 89%, and 82%, respectively, had at least 1 claim for a mental health care service or pharmaceutical. Likewise, 93%, 92%, and 86%, respectively, of Medicaid insured NH children and teens with depression, ADHD, or anxiety had at least 1 claim for a mental health care service or pharmaceutical. Examination of claims for mental health care services only revealed that for both commercially and Medicaid insured children and teens, those with depression or anxiety had a higher rate of services than those with ADHD. Analysis of the number of mental health care service claims revealed that among commercially insured NH children and teens with depression, anxiety, or ADHD, 51%, 40%, and 24%, respectively, had six or more claims in 2019. The number of claims for Medicaid insured NH children and teens indicated that among those with depression, anxiety, or ADHD, 60%, 51%, and 41%, respectively, had six or more mental health service claims in 2019. Analysis of pharmacy claims among commercially insured NH children and teens with depression, anxiety, or ADHD revealed that 70%, 55%, and 82%, respectively, had at least 1 claim. Similar percentages, 64%, 58%, and 82%, respectively, were observed for Medicaid insured children and teens with depression, anxiety, or ADHD.

Mental health-related pharmaceuticals were commonly prescribed to NH children and teens. In 2019, for both commercially and Medicaid insured children and teens, the top 2 pharmaceutical classes prescribed were stimulants (often for ADHD) and antidepressants (often for depression or anxiety). The high rate of stimulant prescriptions is likely an artifact of these being controlled substances, meaning they can only

be dispensed in 30-day increments. In addition, a child or teen may need to try multiple ADHD medications to identify the most effective one. Still, it is notable that among commercially insured NH children and teens, 4 of the top 20 most prescribed pharmaceutical classes were mental health-related. For Medicaid insured NH children and teens, 5 of the top 20 pharmaceutical classes were mental health-related. In comparing 2019 to 2020 prescription data for Medicaid insured children and teens, rates for all mental health-related pharmaceutical classes, with the exception of CNS stimulants, increased while rates for all other classes decreased.

These data validate the importance of pediatric primary care clinician knowledge and confidence in addressing mental health conditions. Diagnoses of mental health conditions among NH children and teens were common. Program such as NH MCAP are critical to enhancing pediatric primary care clinician capacity to address common mental health conditions including ADHD, anxiety, and depression by providing training and technical assistance. While this claims analysis did not examine whether the amount of care was appropriate for the member and/or met current clinical care standards, it demonstrated that the majority of Medicaid and commercially insured NH children and teens appeared to have received at least some type of care for both types of insurance.

Limitations

Limitations of this data analysis must be considered. As this analysis focused on only NH children and teens with enrollment in a medical insurance plan in 2019, the percentages of NH children and teens with selected mental health conditions are likely underestimates of the true prevalence. Further, not every child or teen with a mental health condition receives medical care for the condition. Even if a child or teen does have a primary care visit, it does not necessarily mean that a clinician asks about and/or recognizes a mental health concern or records a diagnosis code. In addition, condition-specific rates may be affected by variation in clinician coding. For example, a child with anxiety symptoms may be given a diagnostic code of adjustment disorder as opposed to an anxiety diagnosis code. With respect to pharmaceuticals, filling a prescription does not necessarily mean the child or teen actually took the medication. These analyses were also not broken down by age, which may reveal age-related differences in mental health disease burden. Analysis by race and ethnicity was also not possible due to these fields being unavailable/unreliable in the claims data. Since this study was a descriptive analysis, statistical significance testing between commercial and Medicaid rates was not conducted.

Recommendations for Future Analysis

This descriptive analysis of pediatric mental health in NH sheds light on future areas for analysis. Stratifying claims by age would illuminate differences in rates due to developmental factors. Likewise, stratifying these analyses for special populations, such as children and teens with chronic conditions or

developmental disabilities, is another recommendation for future research. Examining mental health care service utilization to determine where NH children and teens are receiving services would also be useful. Research to discern the feasibility of analyzing mental health care service utilization by current care quality standards is recommended. Further comparison of 2019 to 2020 claims data would help identify the effect of the COVID-19 pandemic on pediatric mental health. Conducting a follow-up inferential analysis to identify statistically significant differences between commercial and Medicaid rates could be informative as well.

Appendix A: Analysis of Pediatric Mental Health Conditions Data Tables

All Mental Health Conditions

Table A1. Percentage of NH Children/Teens with a Mental Health Condition, by Insurance Type and County, in 2019

County	Percentage of Children/Teens Insured Commercially With a Mental Health Condition, 2019	Percentage of Children/Teens Insured by NH Medicaid With a Mental Health Condition, 2019
Belknap	16%	24%
Carroll	17%	25%
Cheshire	15%	25%
Coos	18%	30%
Grafton	16%	26%
Hillsborough	17%	22%
Merrimack	18%	25%
Rockingham	18%	26%
Strafford	18%	25%
Sullivan	14%	27%
State	**17%**	**24%**

Selected Mental Health Conditions by Diagnosis Code

ADHD Diagnosis:

Table A2. Percentage of NH Children/Teens with an ADHD Diagnosis, by Insurance Type and County, in 2019

County	Percentage of Children/Teens Insured Commercially with an ADHD Diagnosis, 2019	Percentage of Children/Teens Insured by NH Medicaid with an ADHD Diagnosis, 2019
Belknap	5%	9%
Carroll	7%	10%
Cheshire	6%	10%
Coos	8%	15%
Grafton	6%	11%
Hillsborough	7%	9%
Merrimack	6%	9%
Rockingham	7%	13%
Strafford	7%	11%
Sullivan	5%	12%
State	**7%**	**10%**

Anxiety Diagnosis:

Table A3. Percentage of NH Children/Teens with an Anxiety Diagnosis, by Insurance Type and County, in 2019

County	Percentage of Children/Teens Insured Commercially with an Anxiety Diagnosis, 2019	Percentage of Children/Teens Insured by NH Medicaid with an Anxiety Diagnosis, 2019
Belknap	7%	8%
Carroll	7%	8%
Cheshire	7%	9%
Coos	8%	9%
Grafton	7%	8%
Hillsborough	8%	7%
Merrimack	9%	9%
Rockingham	9%	11%
Strafford	9%	8%
Sullivan	6%	9%
State	**8%**	**8%**

Depression Diagnosis:

Table A4. Percentage of NH Children/Teens with a Depression Diagnosis, by Insurance Type and County, in 2019

County	Percentage of Children/Teens Insured Commercially with a Depression Diagnosis, 2019	Percentage of Children/Teens Insured by NH Medicaid with a Depression Diagnosis, 2019
Belknap	3%	4%
Carroll	4%	5%
Cheshire	4%	5%
Coos	4%	5%
Grafton	3%	5%
Hillsborough	3%	4%
Merrimack	4%	4%
Rockingham	4%	6%
Strafford	3%	5%
Sullivan	3%	5%
State	**3%**	**5%**

Selected Mental Health Conditions by Year, 2016-2019

Table A5. Percentage of NH Children/Teens with Selected Mental Health Conditions, by Condition and Insurance Type from, 2016 to 2019

Condition	Year	Percentage of Children/Teens Insured Commercially with Selected Mental Health Condition, 2016-2019	Percentage of Children/Teens Insured by NH Medicaid with Selected Mental Health Condition, 2016-2019
ADHD	2016	6%	10%
	2017	6%	10%
	2018	6%	10%
	2019	**7%**	**10%**
Anxiety	2016	6%	7%
	2017	7%	7%
	2018	8%	8%
	2019	**8%**	**8%**
Depression	2016	2%	3%
	2017	3%	4%
	2018	3%	4%
	2019	**3%**	**5%**

Appendix B: Analysis of Pediatric Mental Health Conditions and Comorbidities with Other Mental Health Conditions Data Tables

ADHD and Comorbid Mental Health Diagnoses

Table B1. Percentage of NH Children/Teens Diagnosed with ADHD and Had Comorbid Mental Health Diagnoses, by Comorbid Condition and Insurance Type, in 2019

Mental Health Diagnoses Comorbid for Teens with ADHD, 2019	Commercial	NH Medicaid
Personality Disorder	2%	0%
Schizophrenia, Schizotypal or Delusional Disorder	2%	1%
Bipolar or Mania Disorder	2%	2%
Substance Use Disorder	2%	2%
PTSD	2%	8%
Suicidal Ideation	3%	4%
Disruptive Mood Dysregulation Disorder	3%	4%
Conduct Disorder	8%	19%
Adjustment Disorder	12%	16%
Depression	15%	14%
Other Comorbid Mental Health Disorder	20%	25%
Anxiety	35%	29%

Anxiety and Comorbid Mental Health Diagnoses

Table B2. Percentage of NH Children/Teens Diagnosed with Anxiety and Had Comorbid Mental Health Diagnoses, by Comorbid Condition and Insurance Type, in 2019

Mental Health Diagnoses Comorbid for Teens with Anxiety, 2019	Commercial	NH Medicaid
Personality Disorder	2%	1%
Bipolar or Mania Disorder	2%	2%
Schizophrenia, Schizotypal or Delusional Disorder	2%	1%
Disruptive Mood Dysregulation Disorder	2%	3%
Substance Use Disorder	3%	3%
PTSD	4%	9%
Suicidal Ideation	5%	7%
Conduct Disorder	6%	13%
Adjustment Disorder	15%	19%
Other Comorbid Mental Health Disorder	25%	28%
Depression	28%	32%
ADHD	28%	35%

Depression and Comorbid Mental Health Diagnoses

Table B3. Percentage of NH Children/Teens Diagnosed with Depression and Had Comorbid Mental Health Diagnoses, by Comorbid Condition and Insurance Type, in 2019

Mental Health Diagnoses Comorbid for Teens with Depression, 2019	Commercial	NH Medicaid
Personality Disorder	4%	2%
Disruptive Mood Dysregulation Disorder	4%	4%
Schizophrenia, Schizotypal or Delusional Disorder	5%	2%
Bipolar or Mania Disorder	5%	3%
Substance Use Disorder	5%	6%
Conduct Disorder	6%	14%
PTSD	8%	14%
Suicidal Ideation	14%	16%
Adjustment Disorder	22%	23%
ADHD	28%	31%
Other Comorbid Mental Health Disorder	32%	32%
Anxiety	67%	56%

Appendix C: Analysis of Pediatric Mental Health Care and Pharmaceutical Service Utilization Data Tables

Mental Health Care Service Utilization

Table C1. Percentage of NH Children/Teens with a Mental Health Condition and at Least 1 Non-pharmaceutical Mental Health Treatment, by Insurance Type and County, in 2019

	Percentage of Children/Teens Insured Commercially with Indication of…			Percentage of Children/Teens Insured by NH Medicaid with Indication of…		
County	Depression and Mental Health Treatment, 2019	Anxiety and Mental Health Treatment, 2019	ADHD and Mental Health Treatment, 2019	Depression and Mental Health Treatment, 2019	Anxiety and Mental Health Treatment, 2019	ADHD and Mental Health Treatment, 2019
Belknap	79%	58%	29%	76%	62%	51%
Carroll	73%	56%	29%	76%	65%	46%
Cheshire	67%	58%	29%	77%	69%	51%
Coos	77%	54%	27%	76%	71%	53%
Grafton	65%	46%	28%	78%	67%	50%
Hillsborough	75%	62%	35%	83%	69%	53%
Merrimack	76%	65%	44%	79%	68%	51%
Rockingham	76%	64%	40%	90%	76%	61%
Strafford	65%	52%	36%	74%	66%	50%
Sullivan	61%	48%	32%	72%	57%	50%

Mental Health Care Service Utilization by Number of Claims

Table C2. Percentage of NH Children/Teens with a Mental Health Condition and Non-Pharmaceutical Mental Health Treatment, by Counts of Treatments and Insurance Type, in 2019

Selected Mental Health Condition	Insurance Type	1 Treatment	2 to 5 Treatments	6 or More Treatments
ADHD	Commercial	4%	9%	24%
	NH Medicaid	4%	8%	41%
Anxiety	Commercial	6%	15%	40%
	NH Medicaid	5%	13%	51%
Depression	Commercial	6%	17%	51%
	NH Medicaid	5%	15%	60%

Mental Health Care Service Utilization, 2016-2019

Table C3. Percentage of NH Children/Teens with Selected Mental Health Conditions and at Least 1 Non-Pharmaceutical Mental Health Treatment in the Same Year, by Insurance Type, 2016 to 2019

Condition	Year	Percentage of Children/Teens Insured Commercially with Selected Mental Health Condition and at Least 1 Non-Pharmaceutical Mental Health Treatment in Same Year, 2016-2019	Percentage of Children/Teens Insured by NH Medicaid with Selected Mental Health Condition and at Least 1 Non-Pharmaceutical Mental Health Treatment in Same Year, 2016-2019
ADHD	2016	36%	52%
	2017	35%	52%
	2018	37%	53%
	2019	**37%**	**53%**
Anxiety	2016	62%	68%
	2017	60%	69%
	2018	61%	67%
	2019	**60%**	**69%**
Depression	2016	76%	82%
	2017	75%	81%
	2018	77%	81%
	2019	**74%**	**81%**

Mental Health Pharmaceutical Service Utilization

Table C4. Percentage of NH Children/Teens With Selected Mental Health Condition and at Least 1 Pharmaceutical Mental Health Treatment, by Insurance Type, in 2019

Selected Mental Health Condition	Percentage of Children/Teens Insured Commercially with Selected Mental Health Condition and at Least 1 Pharmaceutical Mental Health Treatment, 2019	Percentage of Children/Teens Insured by NH Medicaid with Selected Mental Health Condition and at Least 1 Pharmaceutical Mental Health Treatment, 2019
ADHD	82%	82%
Anxiety	55%	58%
Depression	70%	64%

Mental Health Care or Pharmaceutical Service Utilization

Table C5. Percentage of NH Children/Teens With Selected Mental Health Condition and at Least 1 (Pharmaceutical or Non-pharmaceutical) Mental Health Treatment, by Insurance Type, in 2019

Selected Mental Health Condition	Percentage of Children/Teens Insured Commercially with Selected Mental Health Condition and at Least 1 Non-Pharmaceutical or Pharmaceutical Mental Health Treatment, 2019	Percentage of Children/Teens Insured by NH Medicaid with Selected Mental Health Condition and at Least 1 Non-Pharmaceutical or Pharmaceutical Mental Health Treatment, 2019
ADHD	89%	92%
Anxiety	81%	86%
Depression	92%	93%

Appendix D: Diagnosis Code Ranges for Mental Health Conditions

Condition and Code(s) or Code Ranges
Anxiety
F41*
Depression
F32*-F33*
ADHD
F90*
Schizophrenia, Schizotypal and Delusional Disorders
F20*-F29*
Mania and Bipolar
F30*-F31*
Disruptive Mood Dysregulation Disorder
F34.81
PTSD
F43.10, F43.11, F43.12
Adjustment Disorder
F43.20-F43.29
Personality Disorders
F60*
Conduct Disorders
F91*
Other Mental Health Disorder (F34.81 Excluded)
F34.0, F34.1, F34.8, F34.9, F39*, F40*, F42*, F43.8, F43.9, F44*, F45*, F48*, F50*-F55*, F59*, F63*-F66*, F68*, F69*, F93*-F95*, F98*, F99* *Other Mental Health Disorders include: persistent mood disorders, unspecified mood disorders, phobic anxiety disorders, obsessive-compulsive disorders, other reactions to severe stress, reaction to severe stress unspecified, dissociative and conversion disorders, somatoform disorders, eating disorders, sleep disorders, sexual dysfunction (not due to substance or known physiological condition), abuse of non-psychoactive substances, unspecified behavioral syndromes associated with physiological disturbances and physical factors, impulse disorders, gender identity disorders, paraphilias, other sexual disorders, unspecified disorder of adult personality and behavior, emotional disorders with onset specific to childhood, disorders of social functioning with onset specific to childhood and adolescence, tic disorder, other behavioral*

and emotional disorders with onset usually occurring in childhood and adolescence, and mental disorder, not otherwise specified
Suicidal Ideation
R45.851, T14.91, T14.91X, T40.0X2A, T40.0X2D, T40.0X2S, T40.1X2A, T40.1X2D, T40.1X2S, T40.2X2A, T40.2X2D, T40.2X2S, T40.3X2A, T40.3X2D, T40.3X2S, T40.4X2A, T40.4X2D, T40.4X2S, T40.5X2A, T40.5X2D, T40.5X2S, T40.7X2A, T40.7X2D, T40.7X2S, T40.8X2A, T40.8X2D, T40.8X2S, T40.412A, T40.412D, T40.412S, T40.422A, T40.422D, T40.422S, T40.492A, T40.492D, T40.492S, T40.602A, T40.602D, T40.602S, T40.692A, T40.692D, T40.692S, T40.902A, T40.902D, T40.902S, T40.992A, T40.992D, T40.992S
Substance User Disorder
F10*-F16*, F18*, F19*

Appendix E: Treatment and Pharmaceutical Codes

Any Inpatient Stay with any mental health diagnosis on the claim line was considered service utilization for a mental health condition.

Procedure codes:

- 90832 *(with MH Diagnosis)*
- 90833 *(with MH Diagnosis)*
- 90834 *(with MH Diagnosis)*
- 90836 *(with MH Diagnosis)*
- 90837 *(with MH Diagnosis)*
- 90838 *(with MH Diagnosis)*
- 90839 *(with MH Diagnosis)*
- 90840 *(with MH Diagnosis)*
- S0201 *(with MH Diagnosis)*
- 96150 *(with MH Diagnosis)*
- 96151 *(with MH Diagnosis)*
- 96152 *(with MH Diagnosis)*
- 96154 *(with MH Diagnosis)*
- 96155 *(with MH Diagnosis)*
- 96156 *(with MH Diagnosis)*
- 96157 *(with MH Diagnosis)*
- 96158 *(with MH Diagnosis)*
- 99251 *(with MH Diagnosis)*
- 99252 *(with MH Diagnosis)*
- 99253 *(with MH Diagnosis)*
- 99254 *(with MH Diagnosis)*
- 99255 *(with MH Diagnosis)*
- 99281 *(with MH Diagnosis)*
- 99282 *(with MH Diagnosis)*
- 99283 *(with MH Diagnosis)*
- 99284 *(with MH Diagnosis)*
- 99285 *(with MH Diagnosis)*
- 90804
- 90806
- 90807
- 90808
- 90809
- 90810
- 90812
- 90817
- 90822
- 90823
- 90824
- 90826
- 90827
- 90857
- 90862
- 90845
- 90846
- 90847
- 90849
- 90853
- 90863
- 90875
- 90876
- 90867
- 90868
- 90869
- 90870
- 90871
- 90880
- 90882
- 90885
- 90825
- 90831
- 90843
- 90844
- 90887
- 90889
- 90899
- H2019 *(with CMHC NPI)*
- T1027 *(with CMHC NPI)*
- H2027 *(with CMHC NPI)*
- H2010 *(with CMHC NPI)*
- H2023 *(with CMHC NPI)*
- H0035 *(with CMHC NPI)*
- H2001 *(with CMHC NPI)*
- H2018 *(with CMHC NPI)*
- T1016 *(with CMHC NPI)*
- H2020 *(with CMHC NPI)*
- H0034 *(with CMHC NPI)*
- H2015 *(with CMHC NPI)*
- S9485 *(with CMHC NPI)*
- S9484 *(with CMHC NPI)*
- H2011 *(with CMHC NPI)*
- H0043 *(with CMHC NPI)*
- 97153 *(with CMHC NPI)*
- H0040 *(with CMHC NPI)*
- 90785 *(with CMHC NPI)*
- H0038 *(with CMHC NPI)*
- 97155 *(with CMHC NPI)*
- 97156 *(with CMHC NPI)*
- 97151 *(with CMHC NPI)*
- H2022 *(with CMHC NPI)*
- T1023 *(with CMHC NPI)*
- H2012 *(with CMHC NPI)*
- 96130 *(with CMHC NPI)*
- 96131 *(with CMHC NPI)*
- 96138 *(with CMHC NPI)*
- 96139 *(with CMHC NPI)*
- H0031 *(with CMHC NPI)*
- 96153 *(with CMHC NPI)*
- 96133 *(with CMHC NPI)*
- 96132 *(with CMHC NPI)*
- 96116 *(with CMHC NPI)*
- 99404 *(with CMHC NPI)*
- H2017 *(with CMHC NPI)*
- 92507 *(with CMHC NPI)*
- H0032 *(with CMHC NPI)*
- S9480 *(with CMHC NPI)*
- 96110 *(with CMHC NPI)*
- 96136 *(with CMHC NPI)*
- 96137 *(with CMHC NPI)*
- G0176 *(with CMHC NPI)*
- G0177 *(with CMHC NPI)*
- G0410 *(with CMHC NPI)*
- G0411 *(with CMHC NPI)*

Community Mental Health Center NPIs:

- 1003914466
- 1013092857
- 1174635684
- 1285793190
- 1497944623
- 1609848811
- 1649331224

- 1689863342
- 1700955028
- 1770588444
- 1902994866
- 1942264940

Drug Classes:

The pharmaceutical analysis uses Lexicomp drug classes. Drugs were flagged as mental pharmaceutical treatment if they were in the following classes:

- Anxiolytics, sedatives, and hypnotics
- Antipsychotics
- Antiadrenergic agents, centrally acting
- Antidepressants
- CNS stimulants

Appendix F: Supplemental Data Sources and Uses

- American Medical Association (AMA): Procedure codes and descriptions
- American Hospital Association (AHA): Revenue codes
- Centers for Medicare and Medicaid Services (CMS): ICD 10 procedure codes
- National Uniform Claim Committee (NUCC): Provider taxonomies
- National Plan & Provider Enumeration System (NPPES): Provider information